Remediation Storm Water Pollution Prevention Plan

U.S. Smelter and Lead Residential Area Superfund Site- Zone 3,
East Chicago, Indiana

September 20, 2016

Abstract

This document addresses the process of monitoring and maintaining erosion control Best Management Practices during construction for the U.S. Smelter and Lead Residential Area Superfund Site. Environmental Restoration, LLC is tasked with removing lead impacted soil from residential areas, transporting non-hazardous soil transporting soils to an onsite repository for disposal, and restoring the residential properties to pre-existing condition.

Prepared for
The City of East Chicago, Representatives
Greg Crowley and John Martinez Jr.
520 Indianapolis Blvd.
East Chicago, IN 46312

Project No: 5-USZE

Byron Hartman
Response Manager

Table of Contents

1.0 Introduction

Environmental Restoration, LLC (ER) has been contracted by the United States Environmental Protection Agency, Region 5 (EPA) to perform excavation and relocation of lead-contaminated materials (mine waste, soil, gravel, crushed rock, vegetation, root balls, deteriorated landscaping, etc.) from residential properties, and restoration of said properties in association with the U.S. Smelter and Lead Residential Area – Zone 3 site (Site). All actions shall be conducted under the oversight of the EPA. The following plan Storm Water Pollution Prevention Plan (SWPPP) is developed and implemented to control storm water volume and velocity within the site to minimize soil erosion. Storm water discharges will be controlled to minimize erosion of outlets and downstream channels and banks. Site grading plans will consider minimizing disturbance too, or eliminating steep slopes. The overall intent of the plan is to minimize the discharge of sediment from the site by use of erosion and sediment controls, administrative controls, and natural buffers.

2.0 Responsible Parties / Contact Information

2.1 Property Owner/Contractor(s)

Property Owners:

Multiple

Contract Owner:

USEPA Region 5
Tim Drexler
77 W. Jackson Blvd
Chicago, IL 60604
312.353.4367
Drexler.Timothy@epa.gov
USEPA- RPM

Prime Contractor:

Environmental Restoration, LLC
Byron Hartman
1666 Fabick Drive
St. Louis, MO 63026
801.209.0368
b.hartman@erllc.com
Response Manager

A current copy of the SWPPP will be kept and maintained at the project command post located at 490 East 149th Place, East Chicago, IN 46324

Emergency 24-Hour Contact:
Environmental Restoration, LLC 888-814-7477

3.0 Site Evaluation, Assessment, and Planning

Development, implementation, and maintenance of the SWPPP will provide ER with the framework for reducing soil erosion and minimizing pollutants that enter storm water during the site activites. The nature of this contract does not require ER to file an operating permit with Indiana Department of Natural Resources, but does require that the permit's intention be executed.

The SWPPP will:

- Define the characteristics of the site and the type of site activity which will be occurring

- Describe the practices that will be implemented to control erosion and the release of pollutants into storm water
- Create and implement a schedule to ensure that the practices described in this SWPPP are in fact implemented
- Provide protocols that will be used to evaluate the plan's effectiveness in reducing erosion, sediment, and pollutant levels in storm water discharged from the site
- Identify the SWPPP coordinator with a description of this person's duties
- Identify the storm water pollution prevention team that will assist in implementation of the SWPPP during remediation
- Describe the existing site conditions including existing land use for the site (i.e., gravel areas, open grassed areas, pavement, buildings, etc.), soil types at the site, as well as the location of drainage areas which are located on or next to the site (river beds, storm drains, etc.);
- Identify drainage areas and potential storm water contaminants
- Describe storm water management controls and various Best Management Practices (BMPs) necessary to reduce erosion, sediment and pollutants in storm water discharge

4.1 Discharge Information

U.S. Smelter and Lead Remediation Area Project, Zone 3 site has been identified by EPA as the primary area for removal activities. The site is located in East Chicago, Indiana. The site consists has been divided into 3 zones. The anticipated work will occur in Zone 3. Zone 3 is bordered on the south and by the Elgin Joliet and Eastern Railway right of way. It is bordered on the North by Chicago Ave. and on the east by Parrish Ave. Graselli Ave. borders the site on the West. The majority of the properties drain toward East 148th St at the center of the Zone 3 remediation area. East 148th St. drains west toward Parrish Ave. The nearest surface water body to the property is the Grand Calumet River, which is located approximately 2 miles to the south as indicated in the table below.

3.2 Site Description

Facility Name	U.S. Smelter and Lead Remediation Area
Activity	Residential soil remediation
Location	East Chicago, IN
Receiving Waters	Grand Calumet River, approximately 2 miles south of the site.
Emergency Contact Name	Byron Hartman, Response Manager
Emergency Contact #	801.209.0368
Spill Cleanup Contractor	Environmental Restoration, LLC
Cleanup Contractor Contact	Byron Hartman, 801.209.0368
Site Operating hours	Mon-Sat. 7:00 am – 6:00 pm
Total area of property	33 acres
Total area of disturbance	5 acres
Total area to be disturbed at one time	.5 acres

3.3 Nature of the Construction Activity

The general nature of the construction project is to utilize mini hydraulic excavators and dump trucks to remove contaminated soils at a depth of 6 to 24 inches around residential structures throughout East Chicago. The excavated soils will be transported via tarped dump trucks to the soil consolidation repository. The number of residential properties to be completed is currently 18 for this contract. The residential properties are less than .25 acres in size for the limit of

disturbance. The areas excavated will be backfilled with a clean soil and gravel material to the original lines and grades. Vegetation will be restored with sod, and watered for a period of 30 days. Storm water BMPs will be utilized at the residential properties when necessary. Soil Erosion Control and management of the residential properties will be consistent with BMP practices as described in the following section.

3.4 Residential Property Excavations

Prior to excavation each property will be evaluated for storm water run-off concerns. ER will utilize BMPs including silt fence, hay bales, straw wattles, etc. to prevent erosion and sediment migration during land disturbing activities. These devices will be installed in strategic locations based on visual observation of flow patterns and the topography of the areas to control sediment entrained in storm water from exiting and entering the work areas. Water trucks and municipal water will be used to control dust migration.

The work will typically be sequenced such that two or three properties are being excavated and two or three properties are being filled, limiting the number of open excavations on the project so much as practical. Straw wattles and/or other erosion control methods such as silt fence will be used to isolate the disturbed area, as required. Competent supervision will be on-site to evaluate the work areas and determine the most advantageous storm water management at each work area. Storm water will be diverted using BMPs from open excavations to minimize the impact of rain events. Additionally, BMPs may be required to prevent runoff into adjacent storm water control features, such as storm drains.

ER expects that the excavated materials will be transported using dump trucks with capacities of 5 – 7 cubic yards. The dump trucks will be directly loaded at each residential property and dry deconned upon leaving the exclusion zone. A loading zone will be identified for dump trucks within or adjacent to the exclusion zone. The loading zone will be covered with poly sheeting or geotextile material to prevent soil migration from spilled materials during load-out. Spilled soils will be collected and removed from the covers prior to reuse. Dump truck loads will be tarped and the soils will be wetted as needed to minimize dust emissions. Dump trucks will travel on haul roads established for each group of properties.

BMPs will be continuously monitored and inspected daily to ensure they are functioning properly and positioned adequately to be effective. ER personnel will perform routine maintenance inspections and within 24 hours of a rain event exceeding 0.5 inches to record observations and repair any deficiencies. The inspection records will be maintained on Site throughout the duration of the project. Deficiencies will be corrected as soon as they are noted.
Upon completion of the placement of backfill, the properties will be restored to pre-construction condition including the replacement of vegetation including plants, trees and turf. Plants and trees will then be installed and then the turf replaced. Sod will be installed and will be tightly placed to ensure a smooth continuous surface. Sod will then be watered and maintained until it has taken root. Upon stabilization of the residential area (e.g., excavation areas) temporary erosion and sediment controls will be removed.

3.5 Construction Support Activities

Limited construction support will occur at each property. Equipment will be decontaminated prior to movement between properties. General haul routes will be utilized for individual properties. The roadways will be kept open for public use. These roadways will be monitored for soil migration from the area of disturbance. It should be noted that adjacent construction activities by others may also have impact to soil migration on the public road way.

3.6 Sequence and Estimated Dates of Construction Activities

Residential soil removal is anticipated to begin in September of 2016. Soil erosion and sediment control Best Management Practices (BMPs) will be installed at the properties as needed, prior to excavation. Equipment decontamination area will be utilized at each property. Storm water flow will generally drain towards East 148th Street. The properties nearest receiving surface water is the Grand Calumet River. Individual residential properties will be inspected to determine the need for BMPs based on topographical grades and limits of excavation. The following table illustrates the sequence of major construction activities for the project.

Phase	Construction Activities	Best Management Practices	Estimated Start Date	Estimated End Date
1	Mobilization. Install temporary facilities. Site preparation. Minor clearing and grubbing.	Property inspection, installation of BMP's, preliminary grading to facilitate drainage	Sept 2016	Nov 2016
2	Residential Excavation and Backfilling. Residential property restoration.	Grade hauled soils to promote positive drainage. Track compact graded materials in 1-2 foot lifts to prevent erosion.	Sept 2016	Nov 2016

3.7 Allowable Non-Storm water Discharges

The potential source areas of storm water contamination will be identified and evaluated following the initial grade survey.

Type of Allowable Non-Storm Water Discharge	Likely to be Present at Your Site?
Fire Hydrant Flushing	☐ Yes ☑ No
Landscaping Irrigation	☐ Yes ☑ No
Dust Control	☑ Yes ☐ No
Construction Equipment Wash Water	☑ Yes ☐ No
Pavement Wash Waters	☑ Yes ☐ No
Construction Dewatering Water	☐ Yes ☑ No

3.8 Site Maps

One aerial map of the U.S. Smelter and Lead Residential Area Superfund Site is provided as Appendix A. Appendix A.1 identifies storm water drainage. Including:

- Boundaries of the site;
- Direction(s) of storm water flow;
- Areas of soil disturbance and areas that will not be disturbed;
- Locations where stabilization practices are expected to occur

4.0 Documentation of Compliance with Federal Requirements

4.1 Endangered Species Protection

No endangered species were identified through the online search of the US Fish and Wildlife website at the following address. The repository site has been historically used for similar activities by the USEPA and their contractors. http://ecos.fws.gov/crithab/

4.2 Historic Preservation

None of the residential sites being excavated during this phase of construction have been identified as historic.

4.3 Navigable Waterways

There are no land disturbances anticipated that would be within the jurisdictional waters of the US Army Corp of Engineers. A 404 Dredge discharge permit is not applicable. Additionally, a 401 Clean Water Quality Certification is not required. No protected waterways are impacted by the scope of the project.

4.4 Erosion and Sediment Controls

ER will utilize several practices and engineering controls to mitigate the flow of storm water in and out of the limit of disturbance for the U.S. Smelter and Lead Residential Area Superfund Site. Natural buffers and existing cover, along with structural BMPs will be utilized to mitigate the migration of soils do to storm water events.

4.5 Perimeter Controls

Straw wattles or silt fence will be installed as the predominant BMP for erosion control around the properties. Storm water runoff primarily flows towards East 148th St., then west towards Parrish Ave. Specification of silt fence and proper installation are provided as Appendix B. Erosion controls will remain in place until areas are sodded. Each property will be evaluated prior to excavation and erosion controls will be placed as necessary.

4.6 Sediment Track-Out

ER will be responsible for ensuring mitigation of soils at the entrance of properties and along the adjacent public roadway.

4.7 Natural Buffers

Natural buffers (i.e. sod, vegetation) will be left in place whenever possible.

4.8 Stockpiled Soil and Sediment

Soil stockpiling is not anticipated for this project. Excavated material will be immediately transported to the repository for disposal. In most instances, these loads will be graded daily, or at least once per week, weather permitting.

4.9 Minimize Dust

A water truck will be kept on site for washing streets and equipment to mitigate the spread of soils during construction. ER anticipates utilizing a subcontractor to provide street cleaning whenever necessary. In the event that haul roads or excavation areas become dry and dusty, the water truck, equipped with sprayers, will wet the surfaces to eliminate dust migration.

4.10 Minimize Dust

A 6" lift of topsoil will be placed at each yard prior to sod placement. ER will use municipal water or water trucks to provide dust suppression during placement of topsoil. EPA will address final restoration activities for long-term O&M of the properties with each homeowner.

4.11 Soil Compaction

Soils that are brought into the repositories will be graded to promote drainage. The soils will be placed in 1-2 foot lifts and track compacted with by the weight of the equipment and tamped with a vibratory compactor. An 8-10K skid steer is anticipated for grading and compacting the impacted soils.

4.12 Storm Drain Inlets

A storm water culverts will be identified prior to excavation activities. Storm water culverts will be encompassed by straw wattle. These structural BMPs will be inspected daily and after major storm events.

4.13 Dewatering Practices

No dewatering activities are anticipated for the site. Areas of disturbance will maintain a positive grade that promotes drainage. Natural buffers will be left in place whenever possible. Ponding of surface waters is not anticipated.

4.14 Final Stabilization

ER will stabilize areas with vegetation or sod upon completion of removal activities.

5.0 Pollution Prevention Standards

5.1 Potential Sources of Pollution

The attached table indicates potential pollutants that could be migrated from rainfall or snowmelt. The primary pollutants are oil based products associated with heavy machinery operations. This typically consists of fuel, oil, and lubricating grease. Hydraulic oil and antifreeze could potentially be an additional source during equipment malfunction. A saddle tank will be utilized for fuel, and additional maintenance fluids will be stored off-site. Equipment wash waters will not typically include solvents or soaps. In the event that soaps are utilized for cleaning, the wash water will not be allowed to migrate beyond the decontamination pad sediment trap. The site will not contain any sewage discharge, waste water ("Grey water"), concrete washouts, or asphalt wash. No industrial processes will transpire, thus eliminating industrial storm water run-off.

5.2 Construction Site Pollutants

Trade Name Material	Chemical/Physical Description (1)	Storm Water Pollutants (1)
(Pb, As) Impacted Material/Soil	Various colored solid	Lead, Arsenic
Asphalt	Black solid	Oil, petroleum distillates
Concrete	White solid	Limestone, sand
Wastewater from construction equipment washing	Water	Contaminated Soil (Pb, As), oil & grease, solids
Hydraulic oil/fluids	Brown oily petroleum hydrocarbon	Mineral oil
Gasoline	Colorless, pale brown or pink petroleum hydrocarbon	Benzene, ethyl benzene, toluene, xylene, MTBE
Diesel Fuel	Clear, blue-green to yellow liquid	Petroleum distillate, oil & grease, naphthalene, xylenes
Antifreeze/coolant	Clear green/yellow liquid	Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)
Erosion	Solid Particles	Soil, Sediment

5.3 Spill Prevention and Response

In the event of a spill or a leak, site personnel will first identify the source of the leak. The first priority will be to contain the spill. Second, personnel will take measures to stop flow of the leak if safely possible. Several preventative actions will be taken to avoid spills on site. Equipment and vehicles will be inspected daily to ensure safe working ability and observe any potential leak points or contaminants discharges. Items found to be faulty or defective will be taken out of service until they are repaired or replaced. No potential pollutants will be stored on site. Equipment fluids and lubricants will be stored at the project command post located at 490 East 149th St. Equipment fuel will be delivered via a pick-up truck saddle tank to avoid the need for a fuel storage tank. A spill cleanup kit consisting of containment devises such as drums and boom, as well as absorbent material will be kept readily available near the site. Plywood or other clean material will be used to prevent migration of soils collected on truck tires during poor weather conditions.

All ER personnel on site are 40 hour HAZWOPER trained and have received instructions on proper procedures in the event of a spill. As an emergency response contractor, ER has the equipment, personnel, and capabilities to self-address any spills. Potential contaminants also include impacted soils. Soils that are dropped or spilled outside of the designated repository area will be addressed immediately. Soils outside the area will be scooped, swept or dug up and placed back into the repository. In most instances, the use of water will be avoided to prevent additional migration of the spilled soils. Any spills or releases of potential pollutants will be documented along with the cleanup processes. In the event that a spilled pollutant migrates beyond the limit of disturbance for the site or into a receiving water way, IDEM will be notified immediately via the IDEM Spill hotline.

Indiana Department of Environmental Management (IDEM) – 24 hr Spill Hotline
888.233.7745

The state of Indiana requires spill to be reported in the following situations:

- ✓ I Sec. 5. The following spills from a facility must be reported:
- ✓ (1) Spills that damage the waters of the state so as to cause death or acute injury or illness to humans or animals.
- ✓ (2) Spills from a facility that has been notified in writing by a water utility that it is located in a delineated public water
- ✓ supply wellhead protection area as approved by the department under 327 IAC 8-4.1 that are spills of:
- ✓ (A) hazardous substances or extremely hazardous substances when the amount spilled exceeds one hundred (100)
- ✓ pounds or the reportable quantity, whichever is less;
- ✓ (B) petroleum when the amount spilled exceeds fifty-five (55) gallons; or
- ✓ (C) objectionable substances as defined in section 4(11) of this rule.
- ✓ (3) Spills that damage waters of the state and that are located:
- ✓ (A) within fifty (50) feet of a known private drinking water well located beyond the facility property boundary; or
- ✓ (B) within one hundred (100) yards of:
- ✓ (i) any high quality water classified as an outstanding state resource water listed in 327 IAC 2-1-11(b), 327 IAC
- ✓ 2-1.3-3(d), or 327 IAC 2-1.5-19(b), excluding Lake Michigan;
- ✓ (ii) any water designated as capable of supporting a salmonid fishery pursuant to 327 IAC 2-1-6(c)(1) or 327

- ✓ IAC 2-1.5-5(a)(3), except Lake Michigan; or
- ✓ (iii) any water that is a fish hatchery, fish and wildlife area, nature preserve, or recreational water owned by the Department of Natural Resources or the federal government.
- ✓ (4) For any spill that does not meet the criteria in subdivisions (1) through (3), the following must be reported:
- ✓ (A) Spills to surface waters that include one (1) or more of the following:
- ✓ (i) Hazardous substances or extremely hazardous substances when the amount spilled exceeds one hundred (100) pounds or the reportable quantity, whichever is less.
- ✓ (ii) Petroleum of such quantity as to cause a sheen upon the waters.
- ✓ (iii) Objectionable substances as defined in section 4(11) of this rule.
- ✓ (B) Spills to soil beyond the facility boundary that include one (1) or more of the following:
- ✓ (i) Hazardous substances or extremely hazardous substances when the amount spilled exceeds one hundred (100) pounds or the reportable quantity, whichever is less.
- ✓ (ii) Petroleum when the amount spilled exceeds fifty-five (55) gallons.
- ✓ (iii) Objectionable substances as defined in section 4(11) of this rule.
- ✓ Indiana Administrative Code Page 119
- ✓ (C) Spills to soil within the facility boundary that include one (1) or more of the following:
- ✓ (i) Hazardous substances or extremely hazardous substances when the amount spilled exceeds the reportable quantity.
- ✓ (ii) Petroleum when the spilled amount exceeds one thousand (1,000) gallons.
- ✓ (iii) Objectionable substances as defined in section 4(11) of this rule.

5.3 Equipment fueling and maintenance

Equipment fueling and maintenance will not be performed near any surface water or collected storm water. Typically, these tasks will be conducted near the equipment decontamination area where potentially spilled contaminants can be controlled if accidentally released. No fueling, servicing, maintenance or repair of equipment or machinery should be done within 100 feet of a stream, or within 150 feet of a classified stream, losing stream, or sinkhole. Tarps or drop cloths and drip pads should be used when servicing, repairing, or performing maintenance on construction equipment in the field. When work is complete, the contaminated materials, if any, will be disposed of appropriately.

5.4 Equipment and Vehicle Washing

Dry decontamination will be performed on each vehicle leaving the property. Equipment will be decontaminated using dry and wet techniques prior to removal from property.

5.5 Housekeeping

Good housekeeping practice are essential to the successful implementation of the SWPPP. Housekeeping practices will be maintained at all times during site activities. Trash and debris will be collected and stored in appropriate receptacles. A portable toilet will available for personnel.

6.0 Inspection and Corrective Action

The remediation site SWPPP will be coordinated by the onsite Response Manager, Byron Hartman with Environmental Restoration, LLC (remedial contractor). The duties of the Response Manager/SWPPP Coordinator include the following:

- Implement the SWPPP plan with the aid of the SWPPP team

- Oversee maintenance practices and engineering controls identified as BMPs in the SWPPP

- Implement and oversee employee training
- Conduct or provide for inspection and monitoring activities per seven calendar days and within 24 hours of major storm events of 0.5 inches or greater

- Identify other potential pollutant sources and make sure they are added to the plan

- Identify any deficiencies in the SWPPP and make sure they are corrected

- Ensure that any changes in remediation plans are addressed in the SWPPP

6.1 Inspection Personnel and Procedures

ER has designated Byron Hartman, Response Manager as the person responsible for environmental matters. Byron has a thorough and demonstrable knowledge of the site's SWPPP and erosion and sediment control practices in general. Byron is responsible for ensuring that the person who conducts inspections is a "qualified person", defined as "a person knowledgeable in the principles and practice of erosion and sediment controls and pollution prevention, who possesses the skills to assess conditions at the construction site that could impact storm water quality, and the skills to assess the effectiveness of any storm water controls selected to control the quality of storm water discharges from the construction activity."

6.2 Inspection Schedule

Inspections will be done daily. If a rainfall causes storm water runoff to occur on-site, the BMPs must be inspected within a reasonable time period after the rainfall event has ceased. These inspections must occur within 48 hours after the rain event has ceased during a normal work day and within 72 hours if the rain event ceases during a non-work day such as a weekend or holiday.

- Rain Gauge Location - 490 east 159th place, East Chicago, 46324

6.3 Inspection Report Forms

A copy of the inspection report form is included in Appendix C. A log of inspection reports and a copy of each inspection will be maintained at the project Command Post (address above).

6.4 Corrective Action

Any structural or maintenance problems shall be noted in an inspection report and corrected within seven calendar days of the inspection. If weather conditions prevent correction of BMPs within 7 calendar days, the reasons for the delay must be documented (including pictures) and there must be a narrative explaining why the work cannot be accomplished within the 7 day time period. The documentation must be filed with the regular inspection reports, and the problem shall be corrected as soon as weather conditions allow. The following maintenance practices will be used to maintain erosion and sediment controls:

- Built up sediment will be removed from silt fencing when it has reached one-third of the height of the fence, wattle or bale.

- Silt fences and wattles will be inspected for depth of sediment, for tears, to see if the fabric is securely attached to the stakes, and to see that the stakes are firmly in the ground.

- Temporary and permanent seeding or sodding will be inspected for bare spots, washouts, and healthy growth.

- The stabilized construction entrance will be inspected for sediment tracked on the road, for sufficient clean gravel, and to make sure that all traffic uses the stabilized entrance when entering or leaving the site.

If remedial activities or design modifications are made to the remedial plan which could impact storm water, this SWPPP will be amended appropriately. The amended SWPPP will have a description of the new activities that contribute to the increased pollutant loading and the planned source control activities. The amended document will be completed within 7 days following the inspection and the source control activities will be completed before the next anticipated storm event or as soon as practicable. Changes to the SWPPP will be documented in the SWPPP amendment log, Appendix D.

7.0 Training

An employee training program will be developed and implemented to educate employees about the requirements of the SWPPP. This education program will include background on the components and goals of the SWPPP and hands-on training in erosion controls, spill prevention and response, good housekeeping, proper material handling, disposal and control of waste, equipment fueling, and proper storage, washing, and inspection procedures. All employees will be trained prior to their first day on the site. The following personnel, at a minimum, must be trained, and therefore should be listed out individually in the table below:

- Person responsible for environmental matters
- Designated inspector (if different than above)

7.1. Documentation for Completion of Training

Name	Training Completion Date

8.0 Certification and Notification

Subcontractor activities are not anticipated for the scope of work identified in the contract. However, should the use of subcontractors or vendors be needed, they will be notified of the existence of the SWPPP. Actions and precautions to be taken will be identified to ensure the potential for erosion, damage to BMPs, or release of contaminants is mitigated.

Should there be a change in ownership for the repository during construction, the new owner will be made aware of the obligations of the SWPPP for construction activities at the property.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____ Title: _____

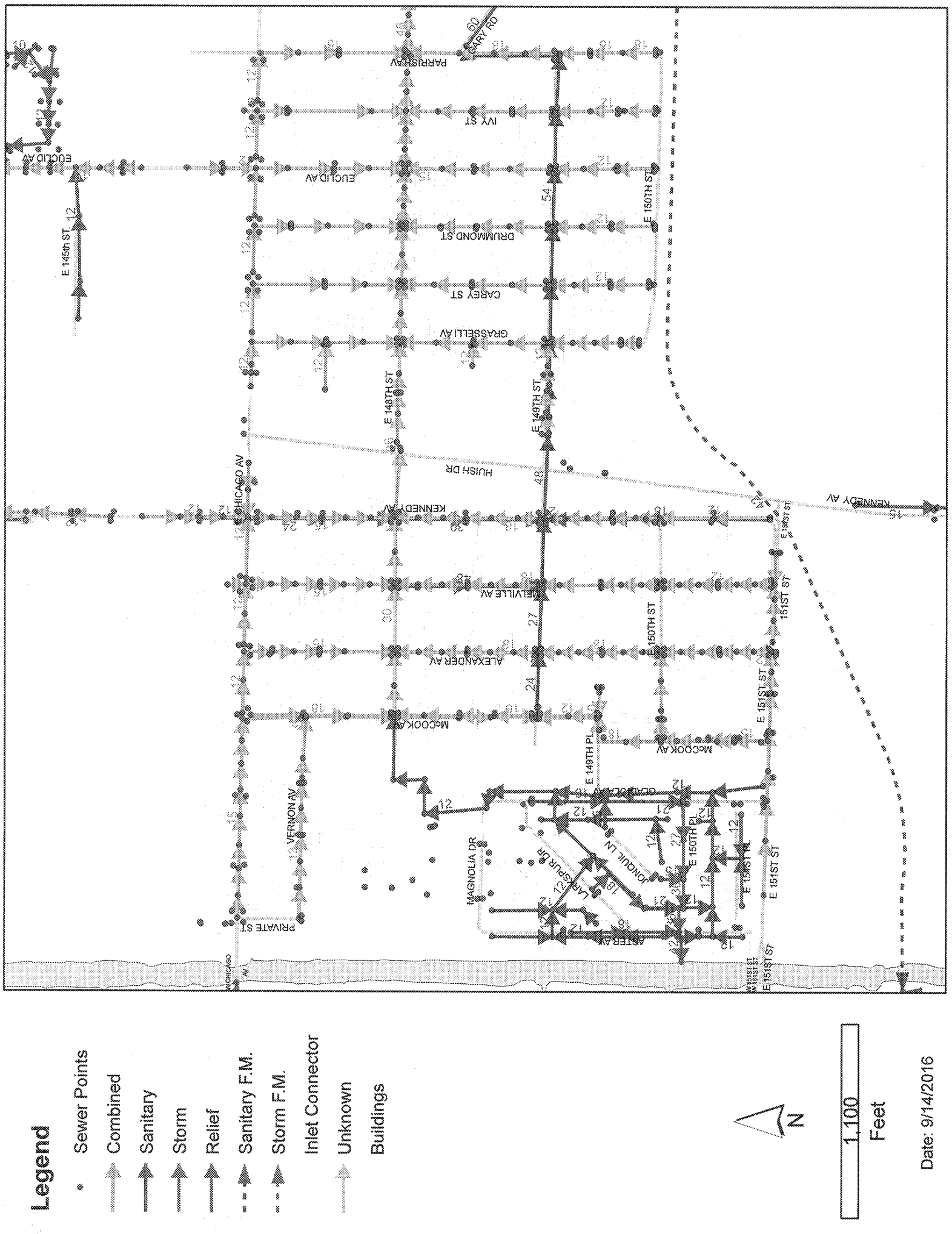
Signature: _____ Date: _____

9.0 SWPPP Appendices

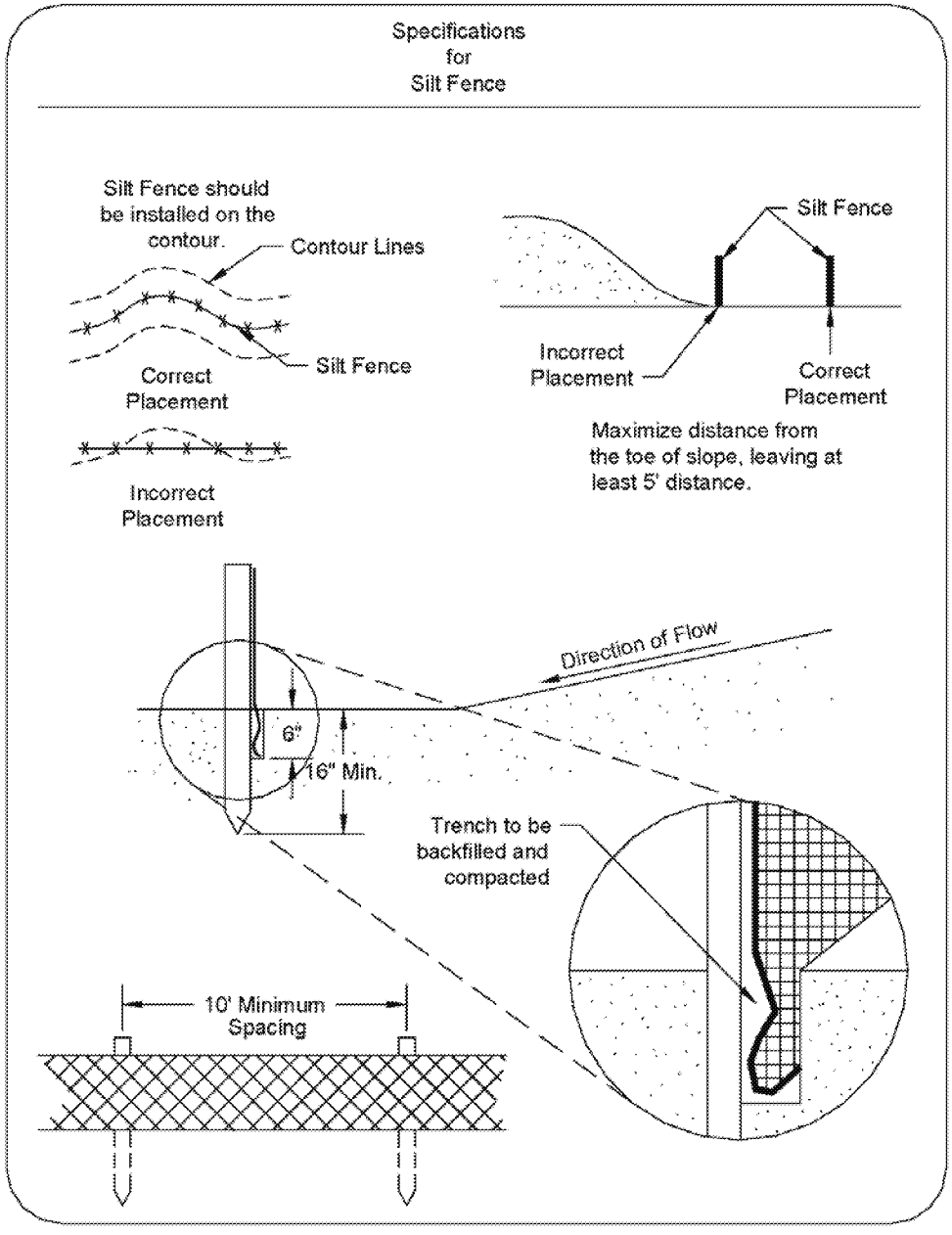
Appendix A
Site Map aerial map of the U.S. Smelter and Lead Residential Area Superfund Site


E Chicago Ave
E 148th St
E 149th St
E 149th Pl
Drummond St
Grasselli Ave
Carey St
Euclid Ave
Ivy St
Parish Ave
Riley
1001-11
1015
Pipeline
1000
1207-19
1301-03
1305-09
1319-11
1501
4707-15
4719-21
4720-28
4723-31
4729-31
4742-46
4744-46
4802-04
4804-06
4807-09
4808-10
4813-15
4817-19
4821-22
4823-25
4827-31
4833-35
4835-37
4838-40
4840-52
4843-45
4843-47
4848-50
4854-60
4858-60
4902-04
4901-05
4906-08
4907-09
4922-30
4928-36
4938-42
4900

Appendix A.1
Storm Water Drainage Map of the U.S. Smelter and Lead Residential Area Superfund Site


Legend
Sewer Points
Combined
Sanitary
Storm
Relief
Sanitary F.M.
Storm F.M.
Inlet Connector
Unknown
Buildings
N
1,100
Feet
Date: 9/14/2016
EUCLID AV
E 145th ST
PARRISH AV
GARY RD
IVY ST
DRUMMOND ST
E 150TH ST
CAREY ST
GRASSELLI AV
E 148TH ST
E 149TH ST
HUISH DR
CHICAGO AV
KENNEDY AV
ALEXANDER AV
McCOOK AV
E 149TH PL
E 150TH PL
E 151ST ST
VERNON AV
PRIVATE ST
MAGNOLIA DR
LARKSPUR DR
JONQUIL LN
ASTER AV

Appendix B – Silt Fence Specifications 1 of 2



Appendix B – Silt Fence Specifications 2 of 2

Specifications
for
Silt Fence

1. Silt fence shall be constructed before upslope land disturbance begins.
2. All silt fence shall be placed as close to the contour as possible so that water will not concentrate at low points in the fence and so that small swales or depressions which may carry small concentrated flows to the silt fence are dissipated along its length.
3. To prevent water ponded by the silt fence from flowing around the ends, each end shall be constructed upslope so that the ends are at a higher elevation.
4. Where possible, silt fence shall be placed on the flattest area available.
5. Where possible, vegetation shall be preserved for 5 ft. (or as much as possible) upslope from the silt fence. If vegetation is removed, it shall be reestablished within 7 days from the installation of the silt fence.
6. The height of the silt fence shall be a minimum of 16 in. above the original ground surface.
7. The silt fence shall be placed in a trench cut a minimum of 6 in. deep. The trench shall be cut with a trencher, cable laying machine, or other suitable device which will ensure adequate uniform trench depth.
8. The silt fence shall be placed with the stakes on the downslope side of the geotextile and so that the 8 in. of cloth are below the ground surface. Excess material shall lay on the bottom of the 6-in. deep trench. The trench shall be backfilled and compacted.
9. Seams between sections of silt fence shall be overlapped with the end stakes of each section wrapped together before driving into the ground.
10. Maintenance - Silt fence shall allow runoff to pass only as diffuse flow through the geotextile. If runoff overtops the silt fence, flows under or around the ends, or in any other way becomes a concentrated flow, one of the following shall be performed, as appropriate: 1) The layout of the silt fence shall be changed, 2) Accumulated sediment shall be removed, or 3) Other practices shall be installed.

Criteria for Silt Fence Materials

1. Fence Posts - The length shall be a minimum of 32 in. long. Wood posts will be 2 by 2 in. hardwood of sound quality. The maximum spacing between posts shall be 10 ft.
2. Silt Fence Fabric (See chart below)

Fabric Properties	Values	Test Method
Grab Tensile Strength	90 lb. minimum	ASTM D 1682
Mullen Burst Strength	190 psi minimum	ASTM D 3786
Slurry Flow Rate	0.3 gal/min/ft maximum	
Equivalent Opening Size	40-80	US Std. Sieve CW-02215
Ultraviolet Radiation Stability	90% minimum	ASTM-G-26

Appendix C – Inspection Form (4 pgs).

SWPPP Inspection Form			
General Information			
Project Name	USS Lead Zone 3		
Location	East Chicago, IN		
Project number			
Date of Inspection		**Start Time:**	**End time:**
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Qualifications	(must attach to this report or indicate the portion of the SWPPP that documents the qualifications of the inspector by name)		
Describe present phase of construction			
Type of Inspection	❑ Weekly ❑ Bi-weekly ❑ Monthly ❑ Pre-storm event ❑ During storm event ❑ Post-storm event		
Weather Information			
Has it rained since the last inspection? ❑Yes ❑No **Weather information/Time Elapsed since last rain event:** **Storm Start Date & Time: Storm Duration (hrs): Approximate Rainfall (in):**			
Weather at time of this inspection?			
Do you suspect that discharges may have occurred since the last inspection? ❑Yes ❑No			
Are there any discharges at the time of inspection? ❑Yes ❑No **If yes, provide location(s) and a description of stormwater discharged from the site (presence of suspended sediment, turbid water, discoloration, and/or oil sheen**			
Non-Stormwater Discharges			
Identify all non-stormwater discharges (i.e. water, other than stormwater, directed to a watercourse, storm drain, or off of the construction site):			

Site-specific BMPs

Number the structural and non-structural BMPs identified in your SWPPP on your site map and lists them below. ***Include all BMPs implemented to manage erosion, sediment transport, waste disposal, material and equipment storage areas, and non-stormwater discharges.*** *Carry a copy of this numbered site map with you during your inspections. This list will help ensure that you are inspecting all BMPs at your site. Customize this section as needed.*

	BMP Description and Location (indicate if associated with non-stormwater)	BMP Installed and Operating Properly?	Corrective Action Needed	Date for Corrective Action/ Responsible Person	Corrective Action Implementation Date
1		❑Yes ❑No			
2		❑Yes ❑No			
3		❑Yes ❑No			
4		❑Yes ❑No			
5		❑Yes ❑No			
6		❑Yes ❑No			
7		❑Yes ❑No			
8		❑Yes ❑No			
9		❑Yes ❑No			
10		❑Yes ❑No			
11		❑Yes ❑No			
12		❑Yes ❑No			
13		❑Yes ❑No			
14		❑Yes ❑No			
15		❑Yes ❑No			
16		❑Yes ❑No			
17		❑Yes ❑No			
18		❑Yes ❑No			
19		❑Yes ❑No			
20		❑Yes ❑No			

Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.

Overall Site Issues

	BMP/Activity	Implemented ?	Maintained?	Location/ Corrective Action	Date for corrective action/ responsible person	Corrective Action Implementation Date
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	❑Yes ❑No	❑Yes ❑No			
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	❑Yes ❑No	❑Yes ❑No			
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	❑Yes ❑No	❑Yes ❑No			
4	Are discharge points and receiving waters free of sediment deposits? **If no, provide locations**	❑Yes ❑No	❑Yes ❑No			
5	Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No			
6	Is there evidence of sediment being tracked into the street?	❑Yes ❑No	❑Yes ❑No			
7	Is trash/litter from work areas collected and placed in covered dumpsters?	❑Yes ❑No	❑Yes ❑No			
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	❑Yes ❑No	❑Yes ❑No			
9	Are vehicle and equipment fueling, cleaning, material storage, and maintenance areas free of spills, leaks, or any other deleterious material?	❑Yes ❑No	❑Yes ❑No			
10	Are materials that are potential stormwater contaminants stored inside or under cover?	❑Yes ❑No	❑Yes ❑No			
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No	❑Yes ❑No			
12	Are there locations where additional BMPs are necessary?	❑Yes ❑No	❑Yes ❑No			
13	Are changes to the SWPPP necessary?	❑Yes ❑No	❑Yes ❑No			

	BMP/Activity	Implemented ?	Maintained?	Location/ Corrective Action	Date for corrective action/ responsible person	Corrective Action Implementation Date
14	(Other)		❑Yes ❑No			

❑ If there were no incidents of noncompliance noted during the inspection the inspector certifies that the construction project or site is being operated in compliance with the SWPPP and Authorization Number OKR1021337.

Certification statement:
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print Inspector's Name: _____

Signature: _____

Appendix D – SWPPP Amendment Log

SWPPP Amendment Activity	*Date*